User Manual

Master Clock

TIME CONTROL I

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General

Westerstrand master clock TIME CONTROL I forms a combination of a controlling unit of secondary clocks, an NTP Time Server and a yearly programmer with 2 outputs for controlling different energy consumers such as electrical striking plates, buzzers for pause signalling etc.
All parameters such as type of time system, impulse type and length, network parameters etc. can be configured by the user. It is also equipped with an automatic measurement function which measures the impulse voltage and current.
The programmer has fixed public holidays and summer/wintertime changing pre-programmed.
The unit offers full flexibility regarding programming working days between holidays, public holidays to weekdays, holiday periods etc.

Configuration of network settings, light intensity and other parameters is done via a WEB-browser.

Functional description

Start up

Connect power and Ethernet or USB cable to computer. Select language and time zone, then finish setup.

Power failure

In the event of a power failure, time continues to run internally in the master clock. Connected secondary clocks are corrected after a power failure by rapid pulse.

Synchronization

The clock is preset for time synchronization via internal time.

Safety

Installation and maintenance of this device must be performed by accredited personnel.
This product must not be installed by unauthorized users/operators. Electrical installation of the equipment must comply with applicable electrical standards.

CAUTION:

This equipment must be serviced by an approved technician. The guarantee shall be cancelled if any modifications are made to this product.

General warning (refer to accompanying documents)

Consult instruction for use

This symbol means that according to local laws and regulations your product shall be disposed of separately from household waste. When this product reaches its end of life, take it to a recycling center designated by local authorities.

Installation

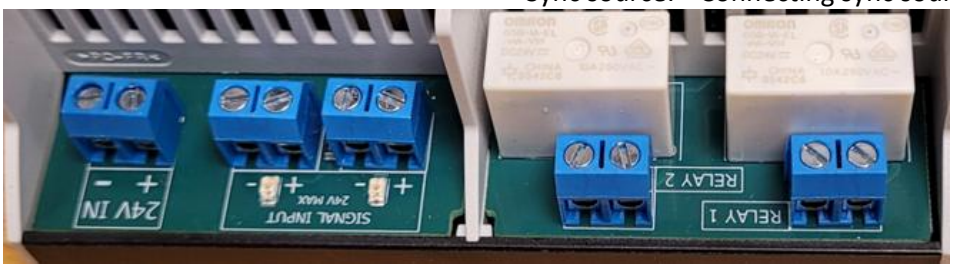
The master clock is adapted to be mounted on a DIN rail.

Note: The master clock is intended for fixed and encapsulated installation in a housing or control cabinet. We recommend Mean Well HDR-30-24 or similar as power supply.

Products intended to be connected to the mains via fixed installation must be connected via a safety switch, external fuse required.

Contacts

Pulse out: Clock drive
RS485: Not connected
Sync source: Connecting sync source



24V In: Connecting the power source
Signal Input: External control signals
Relay 1/2: Connecting relays

Connection

Connect the LAN cable to RJ45.
Connect the 24V supply voltage.

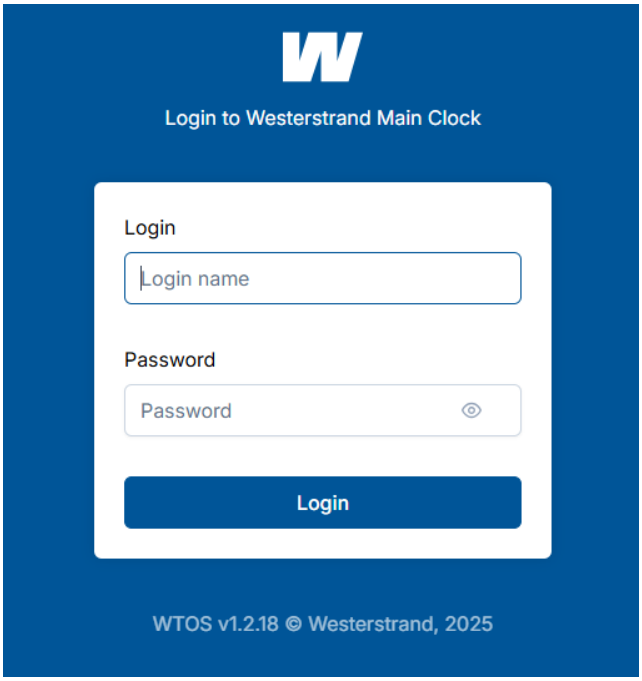
View/configure IP address on front panel

Go to the main menu and select status. Then select Ethernet network to find out which IP address the master clock has received.

Configuration using a WEB browser

Login

It is possible to login as administrator, operator or guest. The administrator has full access and can both read and change the settings in the interface. Operator can read everything but can only change alarms, time, modules, impulse output. Guest users can only read.

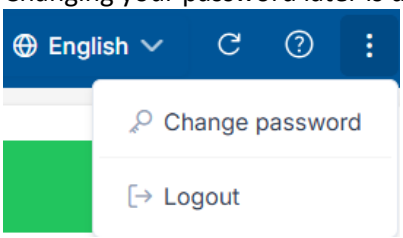


Username

admin and optional for operators and guests.

Password

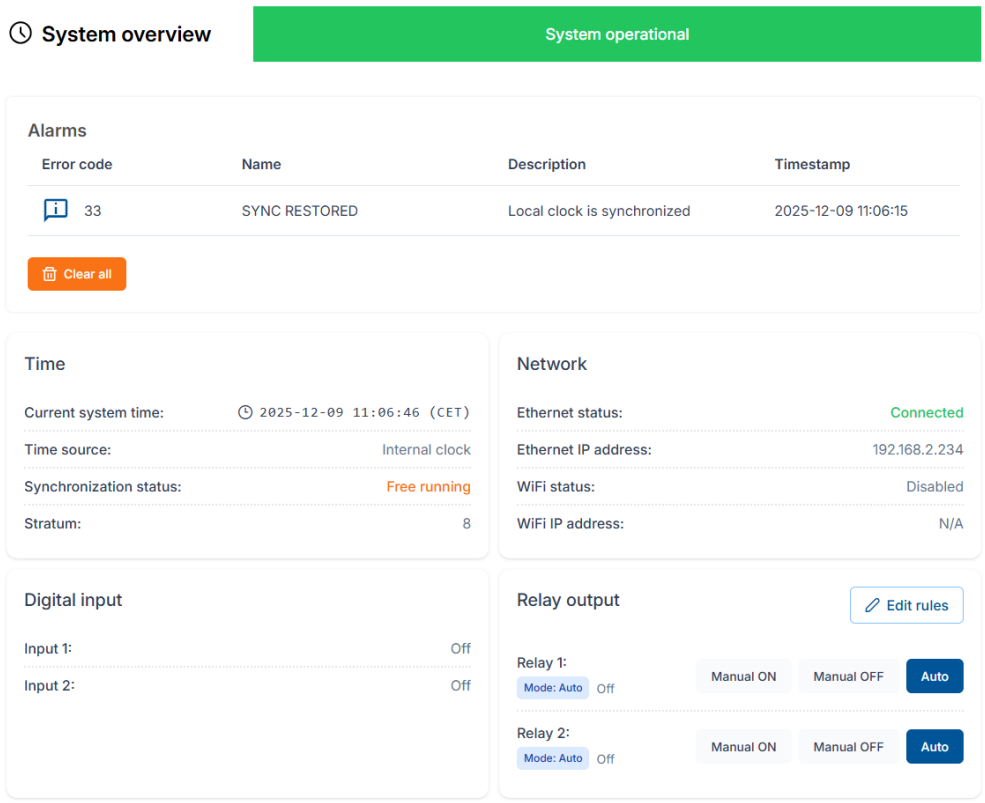
When logging in for the first time, you need to choose a password for admin. For operator and guest, you also must choose a password the first time you log in.
Changing your password later is done by selecting change password.



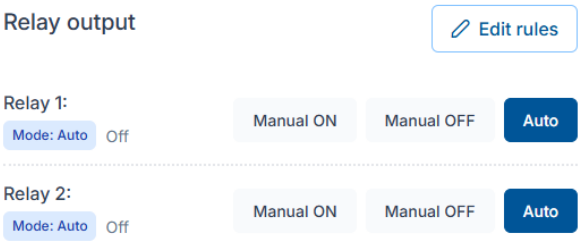
After logging in, a function menu appears.

System overview

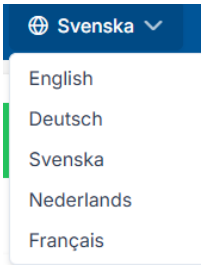
First page show time, digital input, network, relay output and if there are alarms.



You can edit the rules for the relay outputs from this page.

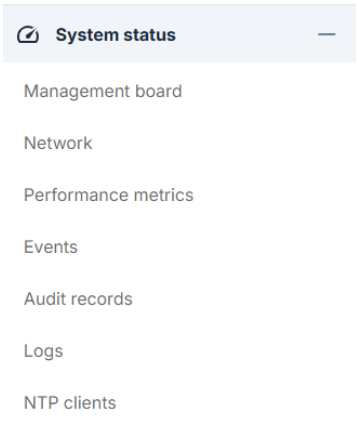


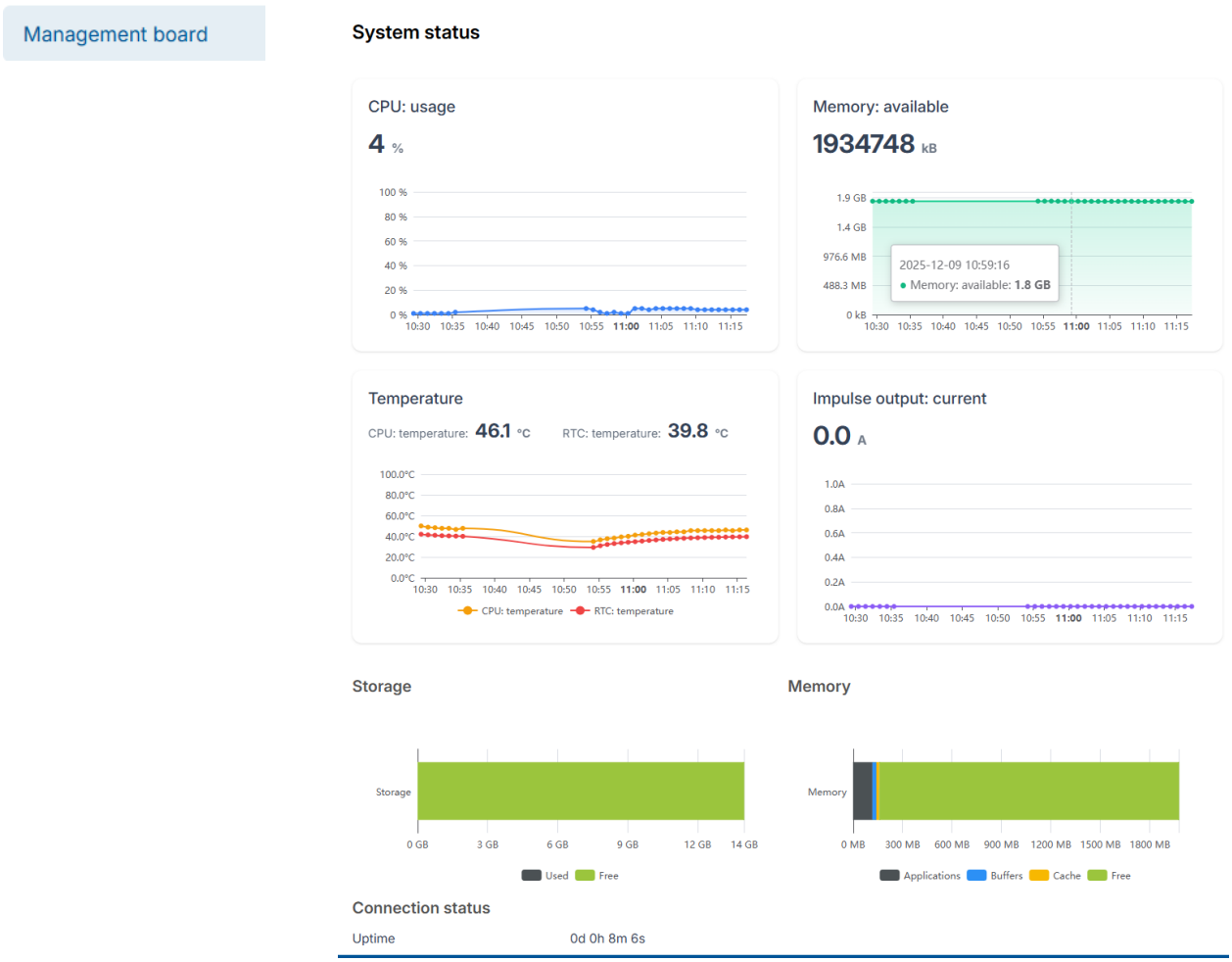
You can also change the language.



System status

Under system status, you can view management cards, networks, performance metrics, events, audit records, logs, and NTP clients.





Network

Network status

Ethernet

Status:	Connected
Link speed:	100 Mbps
Received bytes:	2.0 MB
Transmitted bytes:	5.4 MB
Received packets:	15896
Transmitted packets:	2059

WiFi

Status:	Disabled
Link speed:	N/A
Received bytes:	0 B
Transmitted bytes:	0 B
Received packets:	0
Transmitted packets:	0

IP routes

IPv4 Routes

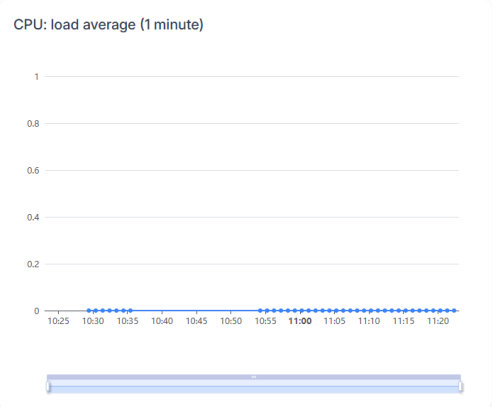
Destination	Mask	Gateway	Metric	Interface
0.0.0.0	0.0.0.0	192.168.1.1	0	eth0
192.168.0.0	255.255.240.0	0.0.0.0	0	eth0
10.101.101.0	255.255.255.0	0.0.0.0	0	usb0

IPv6 Routes

Destination	Prefix length	Gateway	Metric	Interface
::	0	::	4294967295	lo
::1	128	::	0	lo
::	0	::	4294967295	lo

Performance metrics

Performance metrics



Controls

Metric: CPU: load average (1 minute)

Time frame: Last hour

Custom range

From: Select start date

To: Select end date

Apply custom range

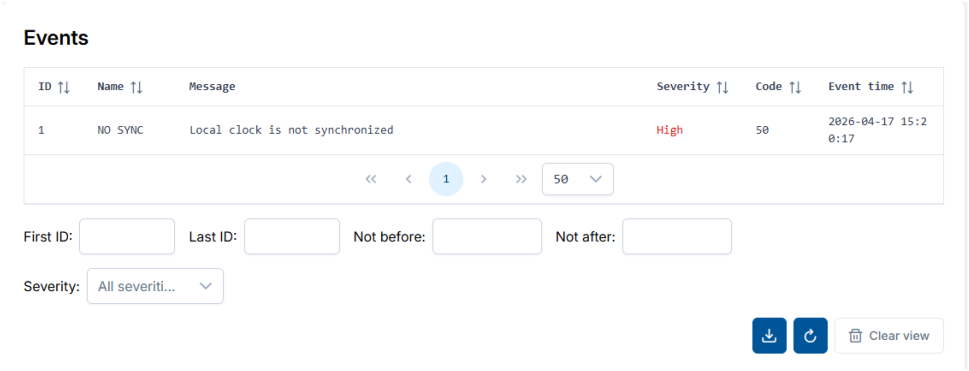
Refresh data

Metric info

Current value	0
Average	0
Minimum	0
Maximum	0

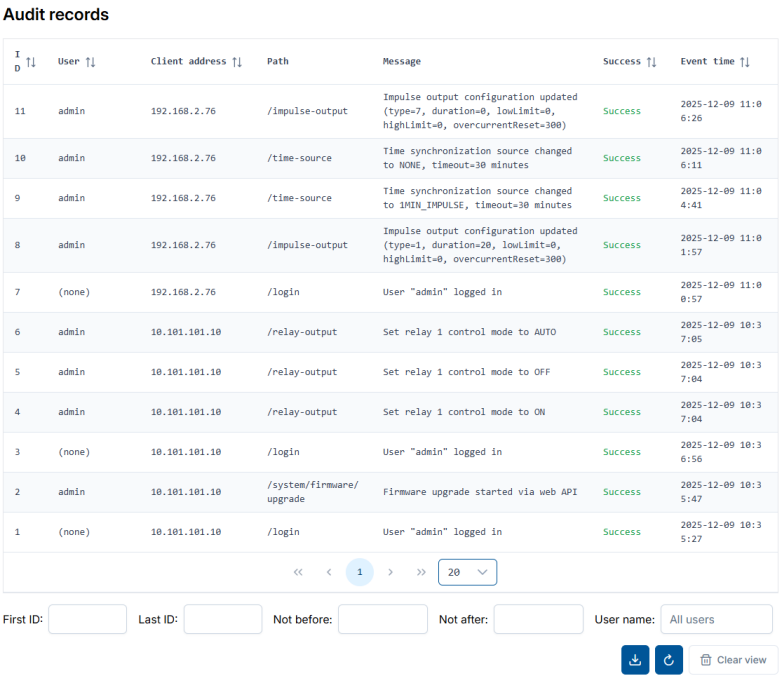
Events

Under events you can see which events have occurred, e.g. Alarm.



Audit records

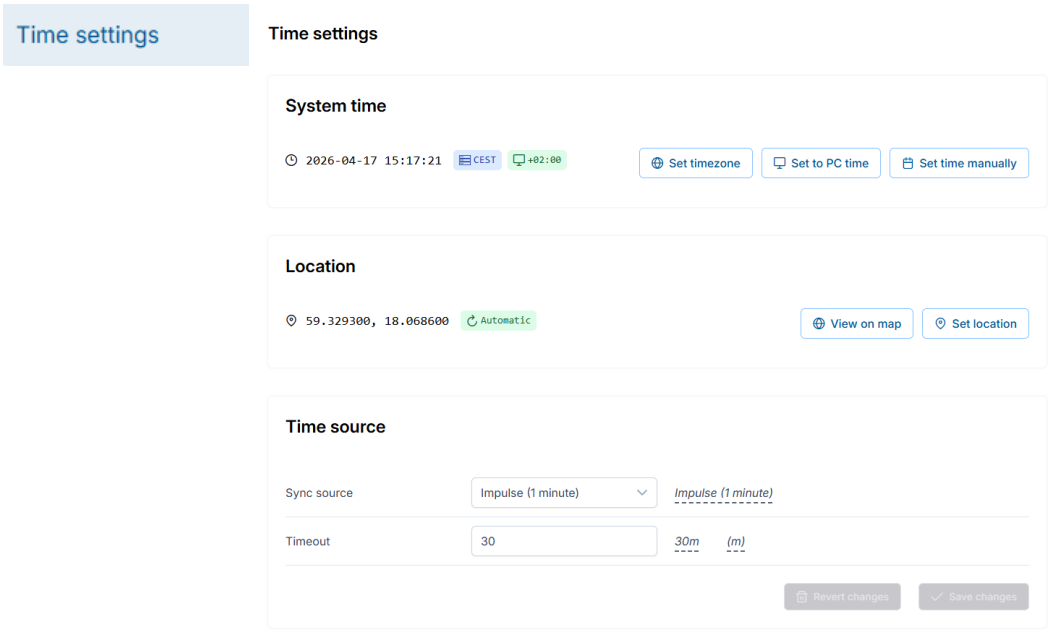
Under review entries you can see who changed/updated and what was changed.



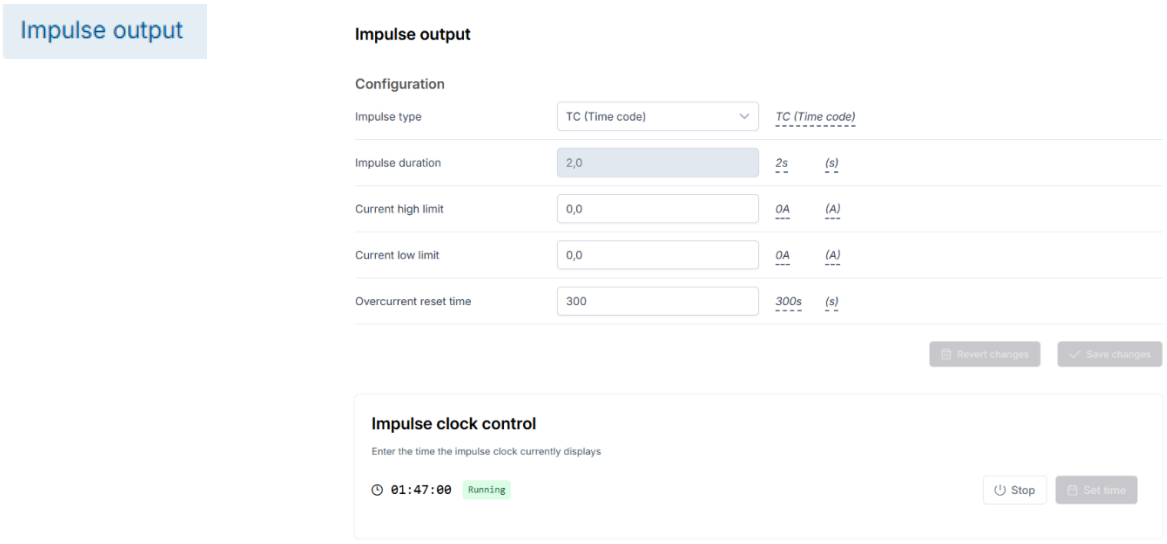
Administration

Under administration you can set time, time synchronization, impulse outputs, NTP and actions.

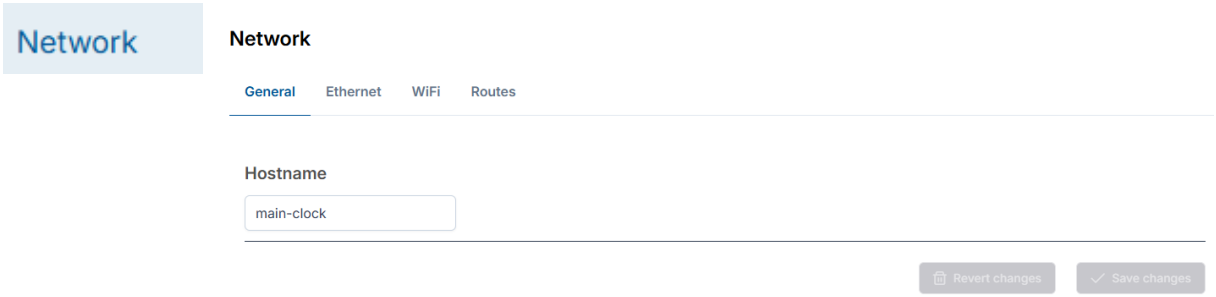
Time settings:
Sets the system time, location and time source. Time source; Internal clock, DCF77 (3-wire), GPS, Impulse (1 minute), Impulse (30 seconds), NTP and time code.



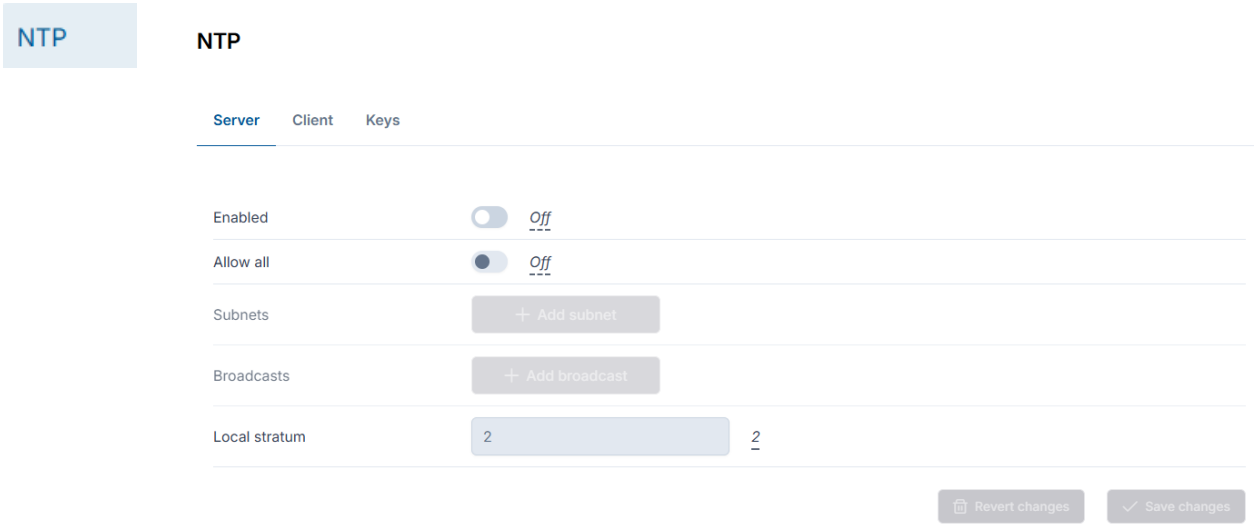
Impulse output:
Sets pulse type, pulse length, high current limit, low current limit and overcurrent recovery time. Also available is clock control.



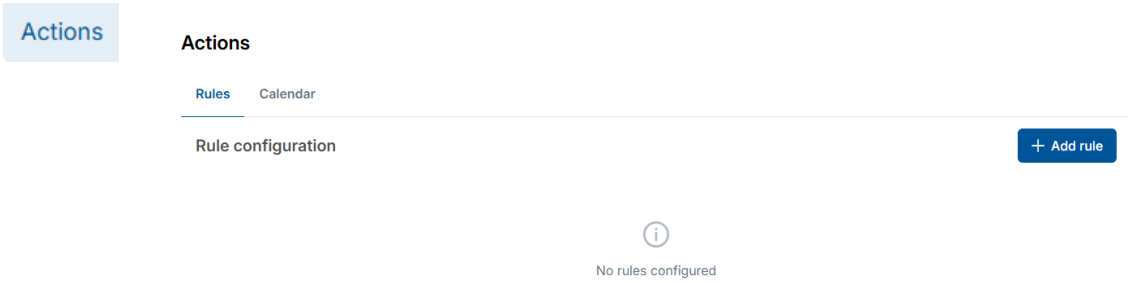
Network:
Under Network, you set hostnames, ethernet settings, Wi-Fi settings and routes.



NTP:
Sets up Server, client and keys.

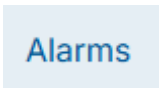


Actions:
Set rules and calendar. Under rules you set how the relay should work and under calendar you see which days it applies.

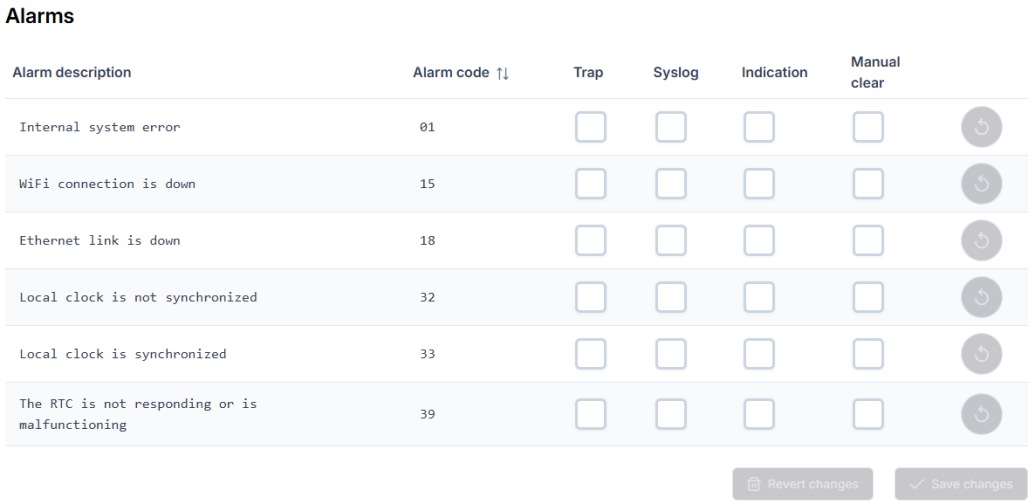


Advanced

Under advanced, you can set alarms, network, web server, SNMP, remote control, users, services, front panel, system and console.

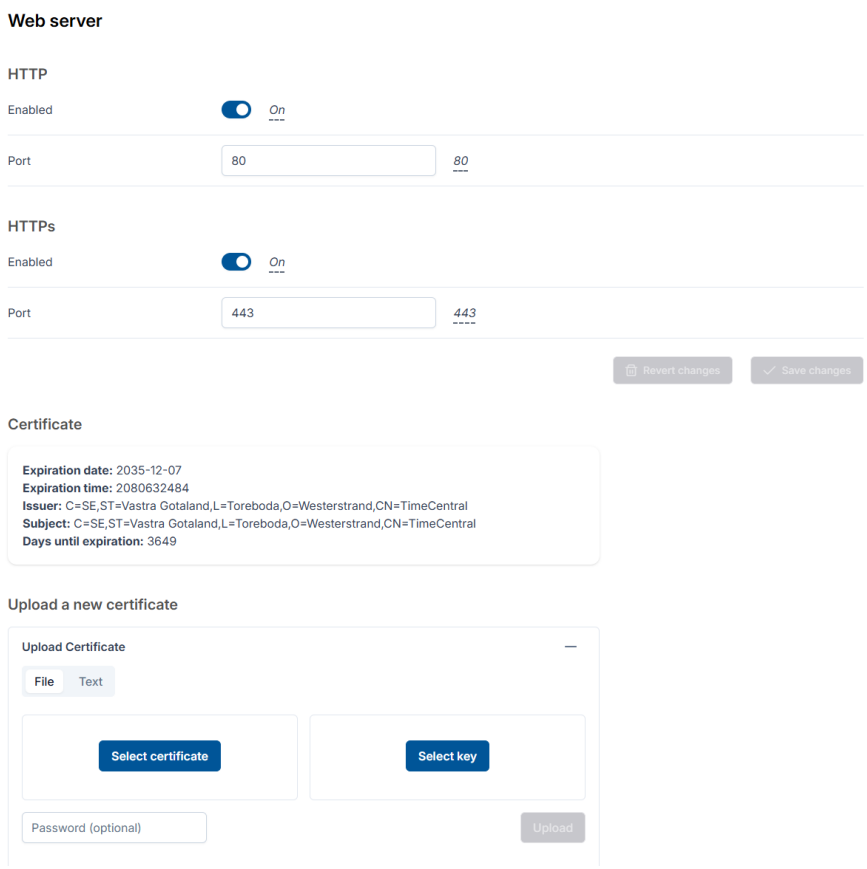


Under Alarms, you set alarms.



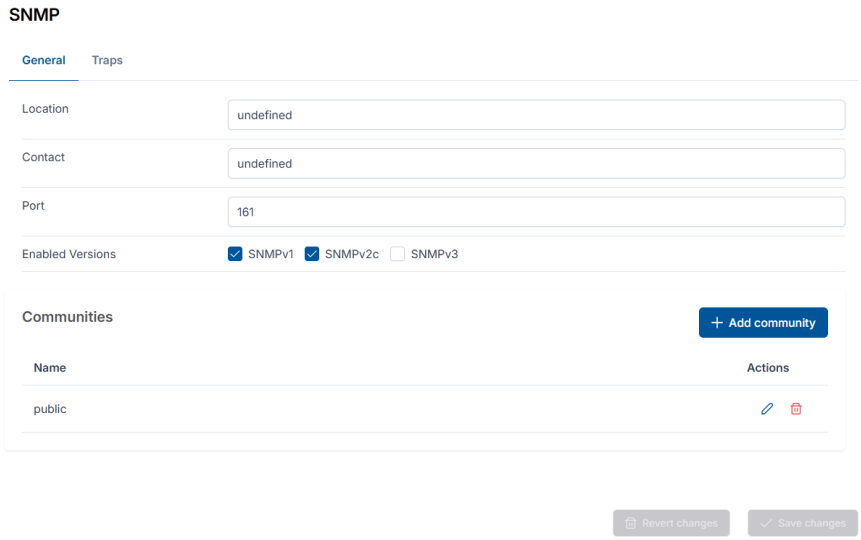
Web server

Under Web server, you can set HTTP and HTTPS and upload certificates.



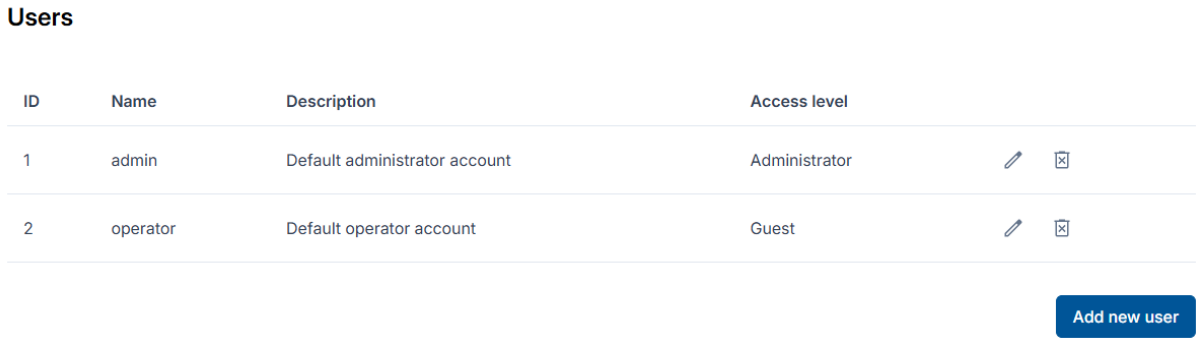
SNMP

Under SNMP, you set up SNMP and traps.



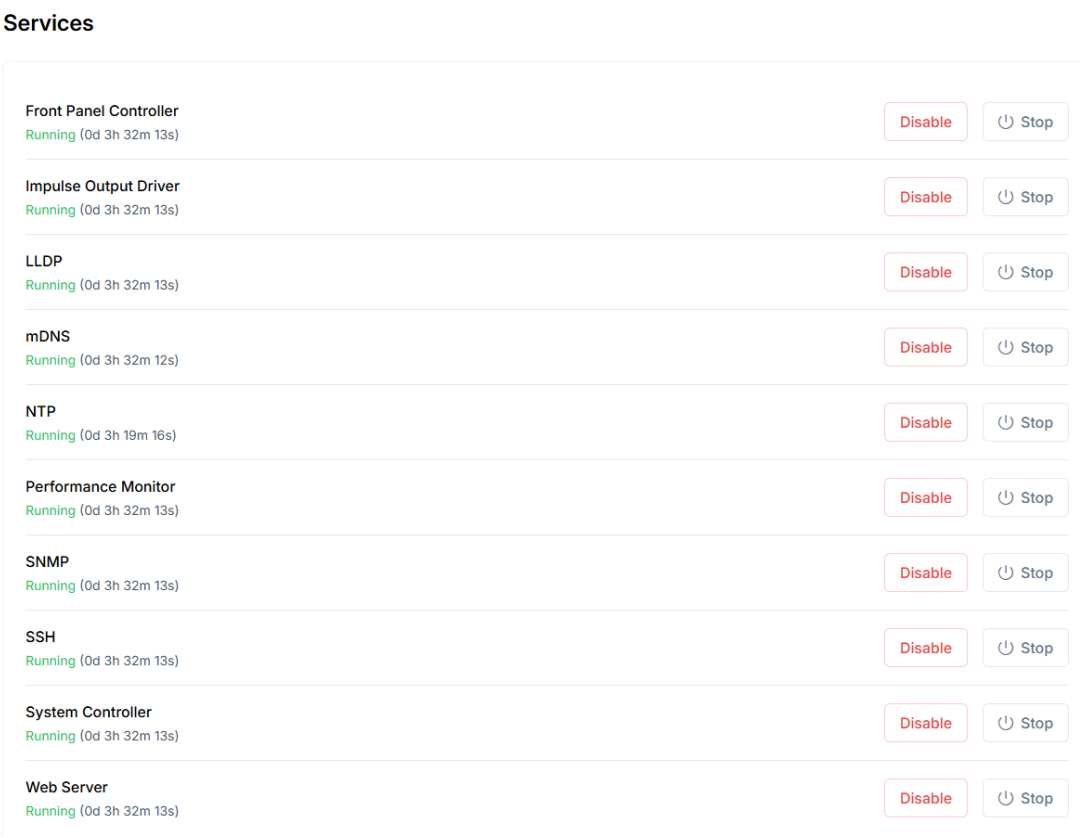
Users

Under users, you add users.



Services

Under Services, you can disable and stop services.

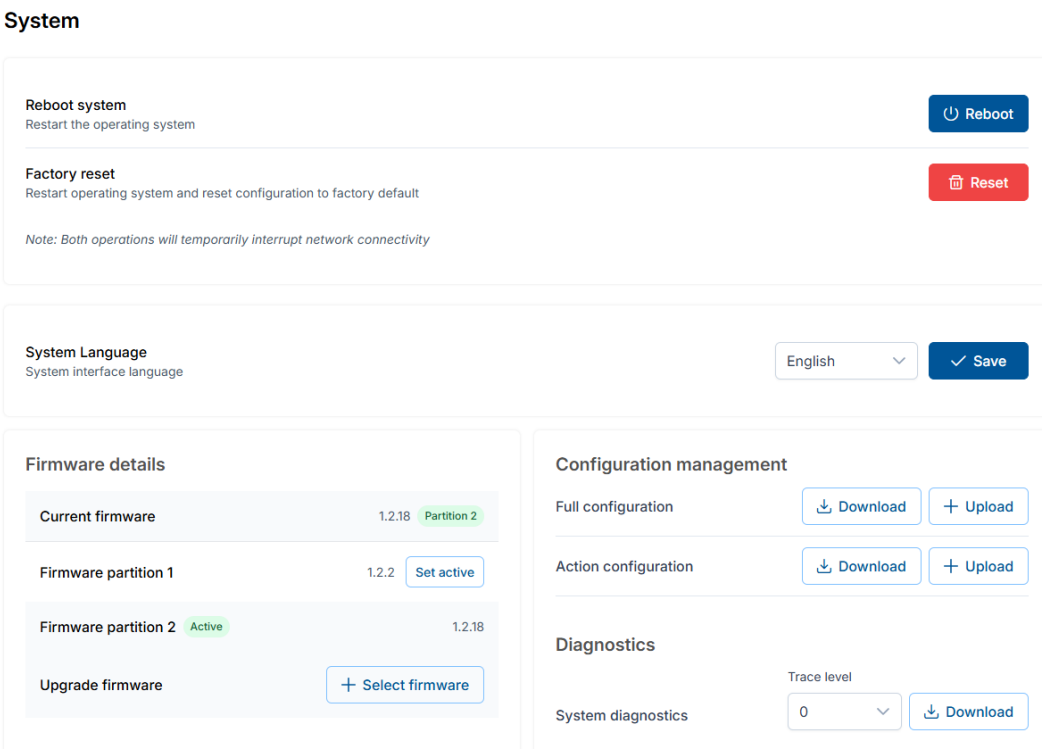


Front panel

Under the front panel, you set parameters for the screen.

System

Under system, you can restart the master clock or perform a factory reset and also perform a software update by updating the Firmware.



Maintenance

A clean and fresh head clock is always a more representative product. The outer casing should therefore be cleaned regularly to keep the device in good condition.

Cleaning
Never spray cleaning agents directly onto the device. Cleaning agents should always be sprayed onto a cleaning cloth and then used to wipe the product clean. Almost all types of common all-purpose cleaners can be used to clean the exterior of the product. However, the cleaning agent must not dissolve or scratch the surface. If cleaning alcohol is used with a cotton swab, the swab should be damp and not so wet that it drips solution. Avoid ammonia-based solvents.

No other maintenance or service is required.

Technical specification

General

Art.nr.:	Time Control I
Accuracy:	+/-0.1 sec./24 h. (at +20°C, without external sync.)
Extern Synchronizing:	GPS, NTP, DCF-77 (Germany), Minute impulse and Time Code (TC). Programmable alarm limits
Running reserve:	Real time clock with 72 hours memory
Max. load clock output.:	1A. (The output is equipped with short circuit protection which resets automatically.)
Clock output:	Selectable 1/1-minute, 1/2-minute, second pulse, Time Code (TC). Programmable alarm limits.
Type of time:	Local time, Normal time and UTC (Coordinated universal time)
Impulse length:	Minute impulse: 2 sec. selectable 0.1 to 9.9 sec. Second impulse: 0.5 sec. selectable 0.1 to 1 sec.
Number of outputs:	2 closing potential-free contacts.
Max load/relay output:	230 V 10A
Program memory:	100 years (EEPROM)

Network

Protocols supported:	NTP version 3 and 4, SNTPv4, and NTS
(For time distribution)	Daytime Protocol (RFC867), Time Protocol (RFC 868)
Other supported protocols:	SNMP v1, v2, v3, MIB II (RFC1155, RFC1157, RFC1213), HTTP, HTTPS, Remote Syslog, SSH
Transport protocol:	TCP, UDP/IP, ICMP
Interna Protocol:	IPv4 / IPv6
NTP requests:	+ 10000/sec.
IP address assignment:	Dynamic, using DHCP, or fixed IP-address
Compatibility:	Ethernet version 2/IEEE 802.3
Ethernet:	Supports 10/100BASE-T (RJ45)
Device Management:	Web-Based via HTTP/HTTPS

Power supply

Supply voltage:	24VDC -5% +10% or 100 - 240V 50 Hz (depending of version)
Max rippel (24VDC):	0,7V RMS
Power consumption:	30 W (max)

Environmental

Temperature range:	0°C to +50°C
Relative humidity:	Max. 85%, non condensing
IP class:	IP 20

Housing

Housing:	Plastic